- [0394] 31. Wienken, C. J.; Baaske, P.; Rothbauer, U.; Braun, D.; Duhr, S., Protein-binding assays in biological liquids using microscale thermophoresis. *Nat. Commun.* 2010, 1, 100.
- [0395] 32. Navarrete-Perea, J.; Yu, Q.; Gygi, S. P.; Paulo, J. A., Streamlined Tandem Mass Tag (SL-TMT) protocol: An efficient strategy for quantitative (phospho)proteome profiling using tandem mass tag-synchronous precursor selection-MS3. J. Proteome Res. 2018, 17, 2226.
- [0396] 33. (a) Ting, L.; Rad, R.; Gygi, S. P.; Haas, W., MS3 eliminates ratio distortion in isobaric multiplexed quantitative proteomics. *Nat. Methods* 2011, 8, 937; (b) McAlister, G. C.; Nusinow, D. P.; Jedrychowski, M. P.; Wuhr, M.; Huttlin, E. L.; Erickson, B. K.; Rad, R.; Haas, W.; Gygi, S. P., MultiNotch MS3 enables accurate, sensitive, and multiplexed detection of differential expression across cancer cell line proteomes. *Anal. Chem.* 2014, 86, 7150.
- [0397] 34. Paulo, J. A.; O'Connell, J. D.; Gygi, S. P., A Triple Knockout (TKO) proteomics standard for diagnosing ion interference in isobaric labeling experiments. *J. Am. Soc. Mass Spectrom.* 2016, 27, 1620.
- [0398] 35. Huttlin, E. L.; Jedrychowski, M. P.; Elias, J. E.; Goswami, T.; Rad, R.; Beausoleil, S. A.; Villén, J.; Haas, W.; Sowa, M. E.; Gygi, S. P., A tissue-specific atlas of mouse protein phosphorylation and expression. *Cell* 2010, 143, 1174.
- [0399] 36. Beausoleil, S. A.; Villén, J.; Gerber, S. A.; Rush, J.; Gygi, S. P., A probability-based approach for high-throughput protein phosphorylation analysis and site localization. *Nat. Biotechnol.* 2006, 24, 1285.
- [0400] 37. (a) Elias, J. E.; Gygi, S. P., Target-decoy search strategy for mass spectrometry-based proteomics. In *Proteome Bioinformatics*, Hubbard, S. J.; Jones, A. R., Eds. Humana Press: Totowa, N.J., 2010; pp 55; (b) Elias, J. E.; Gygi, S. P., Target-decoy search strategy for increased confidence in large-scale protein identifications by mass spectrometry. *Nat. Methods* 2007, 4, 207.
- [0401] 38. McAlister, G. C.; Huttlin, E. L.; Haas, W.; Ting, L.; Jedrychowski, M. P.; Rogers, J. C.; Kuhn, K.; Pike, I.; Grothe, R. A.; Blethrow, J. D.; Gygi, S. P., Increasing the multiplexing capacity of TMTs using reporter ion isotopologues with isobaric masses. *Anal. Chem.* 2012, 84, 7469.
- [0402] 39. Pangborn, A. B.; Giardello, M. A.; Grubbs, R. H.; Rosen, R. K.; Timmers, F. J., Safe and convenient procedure for solvent purification. *Organometallics* 1996, 15, 1518.
- [0403] 40. Ortiz-Meoz, R. F.; Jiang, J.; Lazarus, M. B.; Orman, M.; Janetzko, J.; Fan, C.; Duveau, D. Y.; Tan, Z. W.; Thomas, C. J.; Walker, S., A small molecule that inhibits OGT activity in cells. ACS Chem. Biol. 2015, 10, 1392.

EQUIVALENTS AND SCOPE

[0404] In the claims articles such as "a," "an," and "the" may mean one or more than one unless indicated to the contrary or otherwise evident from the context. Claims or descriptions that include "or" between one or more members

of a group are considered satisfied if one, more than one, or all of the group members are present in, employed in, or otherwise relevant to a given product or process unless indicated to the contrary or otherwise evident from the context. The disclosure includes embodiments in which exactly one member of the group is present in, employed in, or otherwise relevant to a given product or process. The disclosure includes embodiments in which more than one, or all of the group members are present in, employed in, or otherwise relevant to a given product or process.

[0405] Furthermore, the disclosure encompasses all variations, combinations, and permutations in which one or more limitations, elements, clauses, and descriptive terms from one or more of the listed claims is introduced into another claim. For example, any claim that is dependent on another claim can be modified to include one or more limitations found in any other claim that is dependent on the same base claim. Where elements are presented as lists, e.g., in Markush group format, each subgroup of the elements is also disclosed, and any element(s) can be removed from the group. It should it be understood that, in general, where the disclosure, or aspects described herein, is/are referred to as comprising particular elements and/or features, certain embodiments described herein or aspects described herein consist, or consist essentially of, such elements and/or features. For purposes of simplicity, those embodiments have not been specifically set forth in haec verba herein. It is also noted that the terms "comprising" and "containing" are intended to be open and permits the inclusion of additional elements or steps. Where ranges are given, endpoints are included. Furthermore, unless otherwise indicated or otherwise evident from the context and understanding of one of ordinary skill in the art, values that are expressed as ranges can assume any specific value or sub-range within the stated ranges in different embodiments described herein, to the tenth of the unit of the lower limit of the range, unless the context clearly dictates otherwise.

[0406] This application refers to various issued patents, published patent applications, journal articles, and other publications, all of which are incorporated herein by reference. If there is a conflict between any of the incorporated references and the instant specification, the specification shall control. In addition, any particular embodiment of the present disclosure that falls within the prior art may be explicitly excluded from any one or more of the claims. Because such embodiments are deemed to be known to one of ordinary skill in the art, they may be excluded even if the exclusion is not set forth explicitly herein. Any particular embodiment described herein can be excluded from any claim, for any reason, whether or not related to the existence of prior art.

[0407] Those skilled in the art will recognize or be able to ascertain using no more than routine experimentation many equivalents to the specific embodiments described herein. The scope of the present embodiments described herein is not intended to be limited to the above Description, but rather is as set forth in the appended claims. Those of ordinary skill in the art will appreciate that various changes and modifications to this description may be made without departing from the spirit or scope of the present disclosure, as defined in the following claims.